

REMARKS

Claim 1 has been amended to recite that the polyester resin contains ethylene terephthalate units as described, for example, at page 8, lines 26-31 of the specification. Claim 2 has been amended to conform to the amendment to claim 1. There is no change in the scope of claim 2. Withdrawn method claim 6 has been amended to include all of the limitations of product claim 1. If claim 1 is found to be allowable, Applicants respectfully request rejoinder of method claims 6-8 pursuant to MPEP § 821.04.

Also, Applicants affirm the election of Group I, claims 1-5 for prosecution, without traverse.

Review and reconsideration on the merits are requested.

(1) Features of the Present Invention

The present invention effectively suppresses thermal deterioration of the resin at the time of forming the preform and prevents a decrease in intrinsic viscosity. This is achieved by setting the crystallization time to one that is not shorter than 300 seconds before a calorific value of isothermal crystallization of the layer of the polyester resin at 210°C reaches a maximum value. Consequently, the mechanical strength does not decrease at the time of draw-blow forming, and a biaxially draw-blow-formed article is obtained having excellent mechanical strength and flavor-retaining property.

According to the present invention, a preform having a suitable crystallization time is obtained by compression-forming which is conducted so as to suppress thermal deterioration of the resin.

(2) Response to Rejections Over Prior Art

Claims 1-3 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 6,004,638 to Kaya et al. Claims 4 and 5 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kaya et al in view of U.S. Patent 7,258,929 to Kanda et al.

Applicants traverse, and respectfully request the Examiner to reconsider for the following reasons.

The Examiner considered Kaya et al as teaching that "conventional" polyesters for use in making polyester bottles (and preforms, see, for example, col. 1, lines 6-12) such as polyethylene naphthalate exhibit a half time of crystallization of about 500 to 1000 seconds (col. 7, lines 34-38). That is, "conventional" polyesters such as polyethylene naphthalate require more than 300 seconds to reach a maximum calorific value of isothermal crystallization at 210 °C.

In fact, however, the half-time of crystallizing the polyester taught by Kaya et al is related to the polyester composition before being formed into the preform, but is not the half-time of crystallizing the preform.

According to the present invention as described above, the preform is formed by compression-forming in a manner so as not to decrease the intrinsic viscosity in order to suppress thermal deterioration of the resin at the time of forming the preform.

According to Kaya et al, on the other hand, even if the half time of crystallizing the polyester composition used for forming the bottles may lie in the above range, the preform is formed by injection-forming or extrusion-forming (col. 8, lines 5-7), such that the resulting product is different from the preform of the present invention. Therefore, the half-time of crystallizing the preform and the bottle obtained by Kaya et al will be shorter than the half-time of crystallizing the polyester composition, as a matter of course.

To clearly distinguish over the cited prior art, the polyester resin of claim 1 has been limited to one comprising ethylene terephthalate units. That is, the half time of crystallizing the polyethylene naphthalate of Kaya et al does not at all teach the invention of amended claim 1. Aside from the above, the half time of crystallizing the polyethylene naphthalate of 200-300 seconds is not the half time of crystallizing the preform in the bottle. Therefore, the claimed preform is not at all taught or suggested by Kaya et al.

With respect to the rejection of claims 4 and 5 over Kaya et al in view of Kanda et al, Applicants comment as follows.

Kanda et al surely teaches a laminate having a gas-barrier layer of a polyamide resin and a layer of a polyester, and further discloses a half time of crystallizing the polyamide resin.

Kanda et al teaches forming a multi-layer structure by injection-forming (col. 7, lines 16-26), but there is no description of forming the preform by compression-forming and there is no disclosure of the half time of crystallizing the formed multi-layer structure. That is, Kanda et al does not disclose, suggest or otherwise teach the half time of crystallizing the polyester. Therefore, it is respectfully submitted that the invention of claims 4 and 5 could not have been achieved regardless of how Kanda et al is combined with Kaya et al.

Applicants further comment in reference to Fig. 1 of the specification as follows.

Fig. 1 illustrates the measurement of times before the peaks of heat generation occur accompanying crystallization. The preform of the invention exhibits a peak of heat generation due to crystallization which is broader than a peak of heat generation due to the crystallization of the preform obtained by injection-forming. Further, the time T_1 before the calorific value of the preform of the invention reaches a maximum value is considerably longer than the time T_2 before the calorific value of the preform obtained by the injection-forming reaches a maximum

value. That is, the crystallization time of the preform of the present invention is considerably longer than that of a preform obtained by injection-forming. Namely, in the present invention, it is important that the time is not shorter than 300 seconds and, particularly, is in a range of 400-700 seconds before the calorific value of the isothermal crystallization at 210°C reaches a maximum value (page 5, line 20 - page 6, line 9 of the specification).

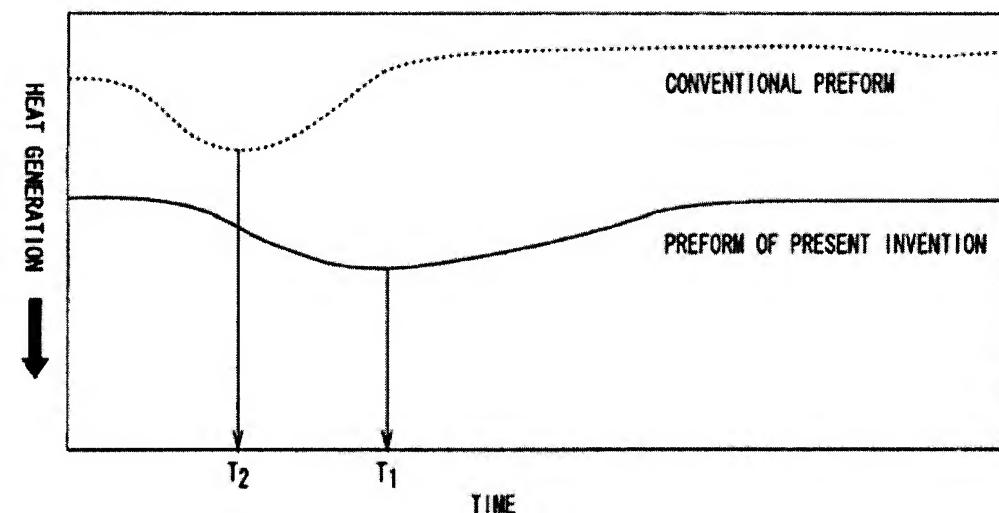


Fig. 1

For example, when the preform of Comparative Example 1 is biaxially draw-blow-formed into a bottle, the time is 250 seconds before the calorific value of the isothermal crystallization of the polyester layer at 210°C reaches a maximum value. The resulting container body exhibits a low buckling strength, poor mechanical strength and inferior flavor-retaining property.

On the other hand, as demonstrated in Example 1, when the preform is biaxially draw-blow-formed into a bottle, the time is 600 seconds before the calorific value of isothermic crystallization of the polyester layer at 210°C reaches a maximum value. The resulting container

body exhibits a high buckling strength and excellent flavor-retaining property (page 6, line 11 - page 7, line 1 of the specification).

Withdrawal of the foregoing rejections, rejoinder of withdrawn claims 6-8 and allowance of claims 1-8 is earnestly solicited.

In the event that the Examiner believes that it may be helpful to advance the prosecution of this application, the Examiner is invited to contact the undersigned at the local Washington, D.C. telephone number indicated below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Abraham J. Rosner
Registration No. 33,276

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

23373

CUSTOMER NUMBER

Date: July 3, 2008